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COMPLETE SPECIFICATION.

Apparatus for Electrotherapeutic Treatment.

I, Nicolai Tscherkassoff, of Ssadowaja-Ssamotetschnaja 254, Moscow, Russia, Physician, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement—

This invention relates to apparatus for therapeutic treatment by means of electrical discharges.

In carrying the invention into effect efficiently insulated electrodes are connected directly to the induction machine and adapted to apply the treatment to the whole or any part of the patients body. These electrodes are adapted as regards form, size, *etc.*, to the purpose in view in each case, and are embedded in a layer of insulating material of greater or less thickness so that, instead of the strong induction spark, a rain of emanations is produced and distributed over the whole of the effective electrode surface which is felt by the patient as a warm wind or in some cases only as a slight tingling of the skin.

The accompanying diagrammatic drawings illustrate by way of example several forms of the improved apparatus. In the simplest form, shown in

Figure 1 the electrode consists of a metal plate 1 covered with insulating material 2, and connected to the one pole of an induction machine by a wire 3 passing through the handle 4 which may be made of "ebonite wood". The insulating material 2 is provided with a mount in the form of a cover 5 of glass which may be enclosed in a casing 6 of wood preferably paraffined.

In using the apparatus the electrode is pressed against or approached to the body of the patient with the front side of glass or wood when the wooden casing is used, whereby the induction current is caused to enter the body in the form of a bundle of scarcely felt discharges. It has been found that the use of the wooden casing impregnated with paraffin or the like has the effect of rendering the discharges less felt. The reason of this may perhaps be that the layer of wood increases the number of the sparks and the uniformity of their distribution over the entire surface of the electrode.

Figure 2 illustrates an electrode suitable for treating small portions of the body or portions of the body that are not readily accessible. A wire net or the like may be used instead of the metal plate 1 shown in Figure 1, or of the metal ball shown in Figure 2.

The effect may be increased by using two electrodes of the kind described connected to each pole.

When it is required to treat an extensive part of the body, or the entire body, with discharges in the manner above described, suitably shaped electrodes of larger size are employed. An example of this arrangement is shown in Figure 3 in which the electrodes *a* for the chest, and the electrodes *b* for the back of the patient are connected to the positive (+) pole, and the electrode *c* for the feet of the patient are connected to the negative (−) pole of the induction machine.

The electrodes of large sire may be manufactured for instance in the following manner:—

The insulating material 2 (for example a mixture of rosin and pitch) which has been melted or rendered liquid by heat is poured into a shallow wooden box *c* (Figure 3) having a removable lid 6, so as to fill it to a suitable height.

[*Price 8d.*]

When the mass has set, a thin metal plate or wire netting 1 provided with a wire 3 for supplying the current, is laid upon the mass. Then the box is filled to the top with insulating material (the thickness of the layer above the plate being made preferably greater than that of the layer underneath the plate), and then the lid 6 is bolted or otherwise fastened down upon the box.

The electrodes may either be connected all together to the induction machine, or they may be connected thereto in pairs (bi-polar connection), or each electrode may be connected separately thereto (uni-polar connection.)

When a strong current is used, the electrodes are not placed in contact with the body of the patient, but are set at a suitable distance away from it so that the silent discharges give the patient the impression of a warm breeze. This is the preferred way of carrying out a general (not local) treatment with silent discharges. For this purpose the electrode may be constructed for example in the form of a couch, or in the case of bi-polar electric treatment as a couch with the other electrode of the kind described held over the patient.

The distance of the body of the patient from the lower electrode is regulated according to requirements by using a mattress or under lay 7 (Figure 4) of greater or less thickness. Such a treatment can be employed instead of the local and general treatment by d'Arsonval discharges, Franklinisation, electric baths *etc.* so that the present invention has a wide field of application before it.

Silent current discharges have not been used hitherto for therapeutic purposes at all. The apparatus described by reason of its great cheapness, simplicity and durability provides a new therapeutic means which as has been proved in many cases of illness, possesses an extraordinary and sometimes astonishing healing power. Its manipulation is very simple and requires neither much time nor great attention on the part of the therapeutic operation. Further the patient can be subjected to the herein described therapeutic electric treatment without removing his garments.

Since silent discharges are nothing more than current impulses succeeding one another in rapid succession (this can be proved by observing a Geissler tube by means of rotating mirrors), they may be utilised instead of the complicated Tesla apparatus for the purpose of healing with the Tesla electrodes. For this purpose as shown in Figure 5, a cardboard cap 8 fitted with a small inner metal plate 9 and an external eye 10 for the wire connected to the Tesla tube, is placed upon the selected electrode, for instance an electrode of the kind shown in Figure 1. With this arrangement the same phenomena will be produced in the Tesla tube with the same therapeutic effect as when a Tesla apparatus is used.

Figure 6 shows an arrangement for the purpose of strengthening the current, in which a large plate metal 11 acting as a collecting plate is placed upon the front face of the electrode. The plates 9 and 11, or the plate 9, may also be pressed in any other desired manner against the front face of the electrode, or a metal body of another construction may be used to connect the Tesla tube to the electrode.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. Apparatus for applying the silent electric discharge to therapeutic treatment comprising metal electrodes connected directly to the terminals of an induction coil and embedded in insulating material, the electrodes and insulating material being arranged together in a casing of glass or wood, or in both casings one inside the other, and adapted to apply the silent discharge treatment to the whole or any part of the patient's body.

2. Apparatus as specified in Claim 1, in which the outer casing or the single casing enclosing the insulating material is made of wood impregnated with paraffin or the like, substantially as and for the purposes hereinbefore described.

3. Apparatus as specified in Claim 1, in which two electrodes of the kind described are connected to different poles of the induction machine for the purpose of producing more intense charging of the body in local or general treatment, substantially as hereinbefore described.

4. Apparatus as specified in Claim 1, in which a Tesla tube is electrically connected to the outer surface of an electrode of the kind described, for the purpose of producing the peculiar phenomena and healing effects of the Tesla electrodes without using the Tesla apparatus, substantially as hereinbefore described.

5. The apparatus for electrotherapeutic treatment by means of the silent electric discharge constructed and operating substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 9th day of June, 1909.

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(1 SHEET)

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1.

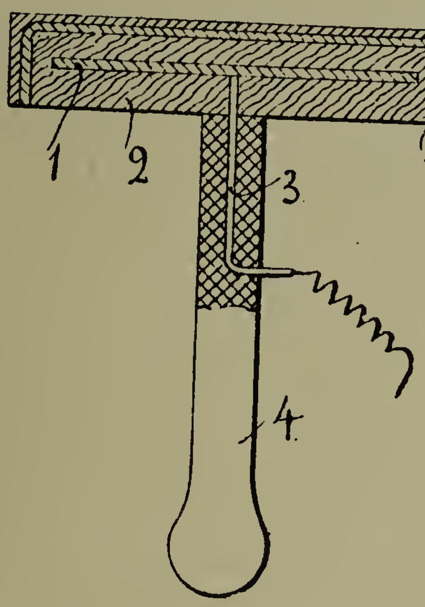


Fig. 2.

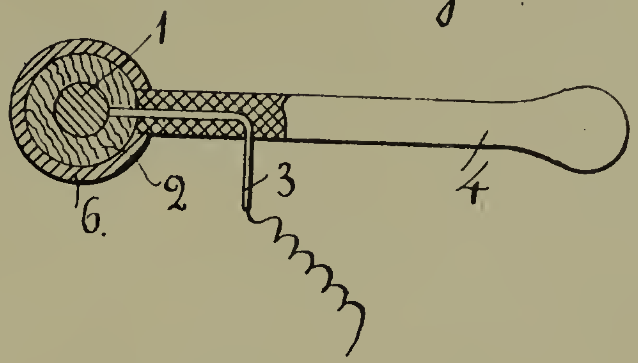


Fig. 5.

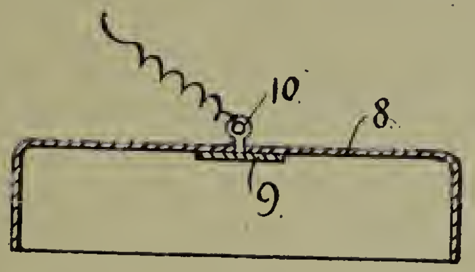


Fig. 6.

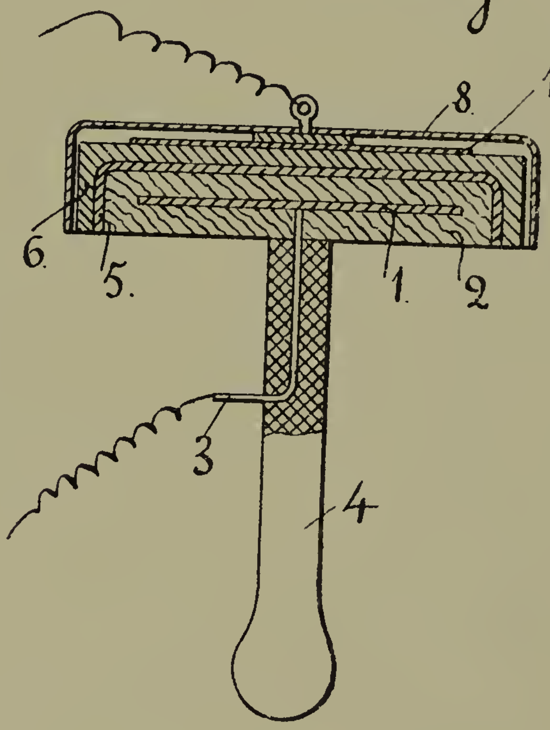


Fig. 4.

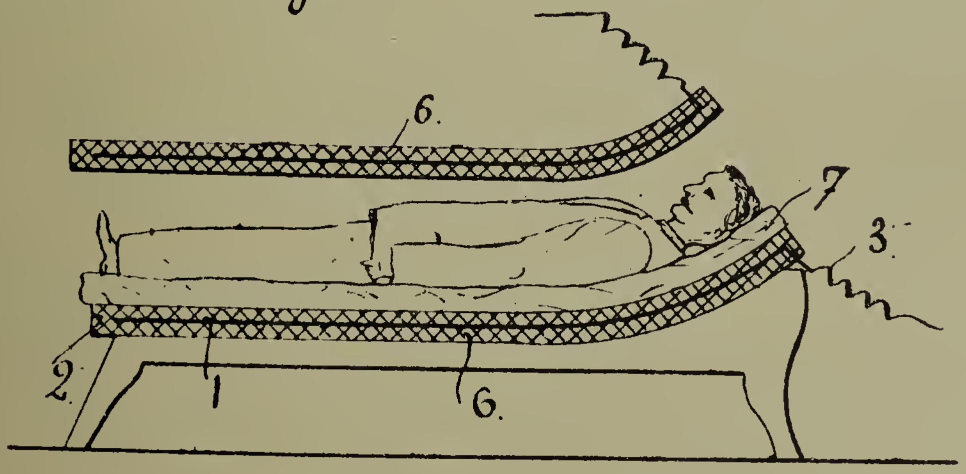
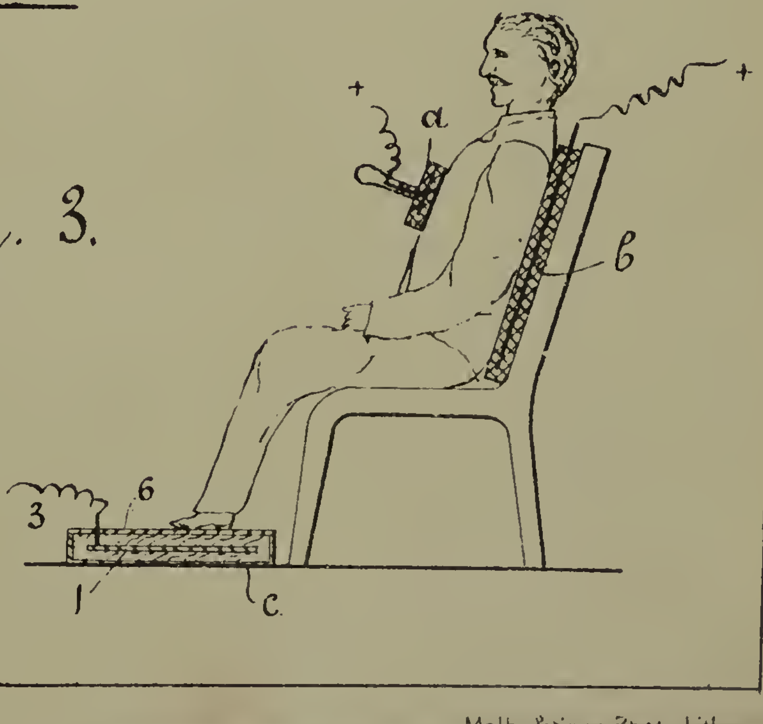


Fig. 3.



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